Air Resources Board

Alan C. Lloyd, Ph.D.
Chairman
9528 Telstar Avenue • P.O. Box 8001 • El Monte, California 91731 • www.arb.ca.gov

Winston H. Hickox
Agency Secretary

Gray Davis
Governor

November 21, 2001

Reference No. Z-01-11

Mr. Jed Mandel, General Council
Engine Manufacturers Association
Neal Gerber & Eisenberg
2 North La Salle Street
Chicago, Illinois 60602

Mr. Bill Harley
Outdoor Power Equipment Institute
341 South Patrick Street
Alexandria, Virginia 22314

Mr. Bruce Bertelsen
Manufacturers of Emission Controls Association
1660 L Street NW, Suite 1100
Washington, DC 20036

Mr. Glenn Passavant
United States Environmental Protection Agency
2000 Traverwood Drive
Ann Arbor, Michigan 48105

Dear Mssrs. Mandel, Harley, Bertelsen and Passavant:

At this time the Air Resources Board (ARB) is developing the 2001 Clean Air Plan (the "Plan"), which will identify a comprehensive set of new strategies ARB will pursue to reduce emissions that contribute to ozone, particulate matter, carbon monoxide, and air toxics. Despite tremendous progress toward cleaning California's air, air pollution in California is still a significant concern. The strategies outlined in the Plan will build on ARB's existing programs to protect public health and the environment, as well as to fulfill the Board's responsibilities under State and federal law. The Plan will be an effective tool to further reduce statewide, regional, and community exposure to air pollution.

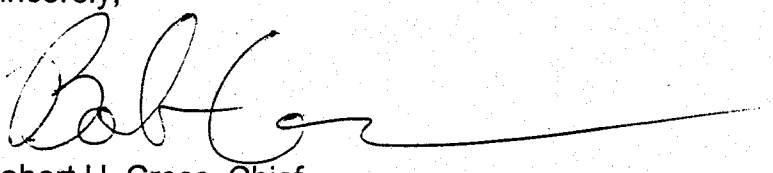
At a recent Clean Air Plan workshop, staff summarized a strategy to implement new emission standards for Class I and Class II small off-road engines (SORE) based on the use of catalysts. Previous research has shown that significant reductions in emissions can be achieved from SORE equipment utilizing catalysts. Research sponsored by

ARB at the Southwest Research Institute showed that pre-2000 model year SORE equipment utilizing a catalyst could meet a 3.2 g/bhp-hr HC+NOx zero-hour emission standard.

Staff is now in the initial phases of developing appropriate catalyst-based SORE emission standards. Staff is tentatively scheduled to hold a public workshop in January 2002 to discuss the upcoming proposed control measure and begin the regulatory process. As part of the regulatory development process, ARB is planning to fund catalyst durability testing on SORE equipment at the Southwest Research Institute. Attached to this letter is a draft Project Summary. Staff encourages you and the members of your association (agency) to provide written comments on this approach. Staff requests that comments be submitted as soon as practicable, however comments will be most useful if they arrive prior to November 30, 2001. Testing will likely start before the end of the year.

Please direct all comments to Mr. Michael W. Carter, Chief, Emissions Research and Regulatory Development Branch, 9528 Telstar Avenue, El Monte, California 91731. If you have any questions, please contact Ms. Jackie Lourenco, Manager, Off-Road Controls Section, by phone at (626) 575-6676, or by e-mail, at jlourenc@arb.ca.gov.

Sincerely,



Robert H. Cross, Chief
Mobile Source Control Division

Attachment

Attachment

Subject: Small Off-Road Engine Draft Test Project Summary

This program includes a six engine test matrix with four Class 1 engines (three walk-behind mowers and one generator), and two Class 2 engines (one walk-behind mower and one generator). Standard (high) and low-loaded catalysts will be tested on two identical Class 1, walk-behind mowers, at zero hour. Evaporative emissions will be determined at zero hour on two engines, possibly the Class 1 mower and generator. Cold start emission testing will be conducted along with the standard 6-mode test at each of the durability test intervals (zero hour, 125, 250 and 500 hours). Emission measurements will encompass engine-out and catalyst-out THC, NMHC, CO, CO2, and NOx. The durability accumulation cycle will be performed over the 6-mode cycle. Emission control system durability will be run out to 250 hours for mowers and 500 hours for generators. Testing will likely take at least eight months to complete.

Project Task Summary Table

Task	Description	Duration
1	Equipment Procurement and Start-up • Purchase equipment and parts in Los Angeles, CA and ship to SwRI • Work with MECA to make catalysts/cans	1 week
2	Zero Hour Testing (cold-start + 6-mode) on six engines • Instrument and install engines • Pre-baseline emission testing • Emission development with catalyst for catalyst optimization • Post-baseline emission testing (with catalyst) • High and low loaded catalyst (on two like engines only) • Evaporation test on post-baseline configuration (two engines only) • Modify post-baseline with evaporative technologies • Evaporation test on post-baseline configuration (two engines only) • Emission testing with evaporation and chosen durability catalyst • Emission testing without catalyst (engine out)	14 weeks
3	Setup for Durability (in-parallel) • Setup for durability sites for 4 engines and 2 generator sets	3 weeks
4	Durability on 6 engines (125, 250, 500 hour emission tests) • Place engine on recommended cycle schedule • Accumulate hours to emission test interval • Transfer to dynamometer and emission test at each interval • Emission testing without catalyst (engine out) • Transfer engine to durability accumulation test stand until finished	11 weeks
5	Report	4 weeks
	Total	**30 weeks**